REMARKS

Claims 1-17, 19, 24, 28-45, 50, 51 and 53-67 are pending in the instant application, of which claims 2, 7, 9, 11, 16, 28-45, 50, 51 and 61-67 are presently withdrawn. In particular, claims 2, 7, 9, 11, 30, 35, 37 and 50 were withdrawn as a result of the restriction requirement of August 29, 2005, and claims 16, 28-45, 50, 51 and 61-67 were withdrawn by the Examiner. Claims 1 and 28 are independent. Claim 1 is amended by the instant amendment.

Applicants appreciate the Examiner's acceptance of the drawings filed on March 2, 2006.

Applicants note that claim 29 has been labeled "Original - Withdrawn," in accordance with the Examiner's suggestion. *See the Office action of May 12, 2006, at paragraph no. 1, page 2.*

Claims 1, 3-6, 8, 10, 12-15, 17, 19, 24 and 53-60 are presented to the Examiner for further prosecution on the merits.

A. Introduction

In the outstanding Office action, the Examiner rejected claims 1, 15, 53 and 54 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,957,037 to Fletcher et al. ("the Fletcher et al. reference"); rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,895,163 to Libke et al. ("the Libke reference"); rejected claims 1 and 24 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,372,141 to Gallup ("the Gallup reference"); rejected claims 1 and 60 under 35 U.S.C. § 102(b) as being anticipated by WO 00/19894 to Skladnev et al. ("the Skladnev et al."); rejected claims 1, 4, 6, 8, 10 and 53-59 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,408,204 to Hirschman ("the Hirschman reference"); rejected claims 3 and 5 under 35 U.S.C. § 103(a) as being unpatentable over the Hirschman reference in view of U.S. Patent 5,114,424 to Hagen et al. ("the Hagen et al. reference"); rejected claim 17 under 35 U.S.C. § 103(a) as being unpatentable over the Libke et al. reference in view of U.S. Patent No. 4,917,093 to Dufresne

et al. ("the Dufresne reference"); rejected claims 1, 19 and 60 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,578,635 to Mee et al. ("the Mee et al. reference") in view of the Skladnev et al. reference; and rejected claims 12-14 under 35 U.S.C. § 103(a) as being unpatentable over the Fletcher et al. reference in view of U.S. Patent No. 5,810,762 to Hofmann ("the Hofmann reference").

B. Asserted Anticipation Rejection of Claims 1, 15, 53 and 54

In the outstanding Office action, the Examiner rejected claims 1, 15, 53 and 54 under 35 U.S.C. § 102(b) as being anticipated by the Fletcher et al. reference. Applicants respectfully submit that claim 1 is not anticipated by the Fletcher et al. reference for at least the reasons set forth below.

Claim 1 is amended by the instant amendment and recites,

> An impedance measurement system for measuring skin impedance in a small skin region, comprising:
> an electrode unit having a plurality of current supply electrodes for supplying a constant direct current and a plurality of measurement electrodes separate from the current supply electrodes for measuring a response signal of skin; and
> a current source for supplying the constant direct current to the current supply electrodes,
> wherein the skin impedance is obtained from the measured response signal.

In the outstanding Office action, the Examiner asserted that the Fletcher et al. reference discloses a current source I2, and further discloses that the current source I2 may be constructed from a "constant current generator." *Office action of May 12, 2006, at paragraph no. 6, page 3.* However, applicants respectfully submit that the Fletcher et al. reference fails to disclose or suggest "a current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1.

In particular, applicants note that the Fletcher et al. reference describes applying a *high frequency* electrical current to the electrodes. See, e.g., the Fletcher et al. reference at col. 3, lines 60-63, which states, "[t]he output signal from the high frequency electrical

generator 12 is coupled to a pair of transmitting ring electrodes 14 which are disposed around a body segment 18. Accordingly, it is apparent that an alternating current, viz. the high frequency electrical current, is applied to the ring electrodes 14. Moreover, the Fletcher et al. reference merely describes *constructing* the high frequency generator 12 from a constant current generator in order to reduce noise in the output signal. Applicants respectfully submit that the Fletcher et al. reference does not state that the output of the high frequency generator is a constant current, nor does it state that the output is a direct current, as presently recited in claim 1. Accordingly, applicants respectfully submit that there are significant differences between the subject matter recited in claim 1 and the Fletcher et al. reference, since claim 1 recites a current electrode for supplying a constant direct current to the skin, which provides a constant direct current and is separated from a measurement electrode.

In view of the above, applicants respectfully submit that the Fletcher et al. reference fails to disclose or suggest each and every element of claim 1. Accordingly, claim 1, as well as claims 15, 53 and 54 depending therefrom, are believed to be allowable over the Fletcher et al. reference. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

C. Asserted Anticipation Rejection of Claim 1

In the outstanding Office action, the Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by the Libke et al. reference. Applicants respectfully submit that claim 1 is not anticipated by the Libke et al. reference for at least the reasons set forth below.

In the outstanding Office action, the Examiner asserted that the Libke et al. reference discloses a current source, and further discloses that the current source maintains a test signal and remains constant. *Office action of May 12, 2006, at paragraph no. 11, page 3.* However, applicants respectfully submit that the Libke et al. reference fails to disclose or suggest "a

current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1.

In particular, applicants note that the test signal has "a frequency of between 40 to 60 Kilohertz." See the Libke et al. reference at col. 6, lines 12-13. Accordingly, it is apparent that an alternating current, viz., the 40-60 KHz signal, is described. Applicants respectfully submit that the Libke et al. reference does not describe the output of a direct current, as presently recited in claim 1. Accordingly, applicants respectfully submit that there are significant differences between the subject matter recited in claim 1 and the Libke et al. reference, since claim 1 recites a current electrode for supplying a constant direct current to the skin, which provides a constant direct current and is separated from a measurement electrode.

In view of the above, applicants respectfully submit that the Libke et al. reference fails to disclose or suggest each and every element of claim 1. Accordingly, claim 1 is believed to be allowable over the Libke et al. reference. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

D. Asserted Anticipation Rejection of Claims 1 and 24

In the outstanding Office action, the Examiner rejected claims 1 and 24 under 35 U.S.C. § 102(b) as being anticipated by the Gallup et al. reference. Applicants respectfully submit that claim 1 is not anticipated by the Gallup et al. reference for at least the reasons set forth below.

In the outstanding Office action, the Examiner asserted that the Gallup et al. reference discloses a current source 44, and further discloses that the current source is a source of substantially constant peak-to-peak alternating current. *Office action of May 12, 2006, at paragraph no. 13, page 4.* However, applicants respectfully submit that the Gallup et al. reference fails to disclose, or even suggest, "a current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1.

In particular, applicants note that the rejection is based on the disclosure of a "substantially constant peak-to-peak *alternating* current." See also the Gallup et al. reference at col. 6, lines 23-25, which states that the alternating current is 50 KHz. Applicants respectfully submit that the Gallup et al. reference does not describe the output of a direct current, as presently recited in claim 1. Accordingly, applicants respectfully submit that there are significant differences between the subject matter recited in claim 1 and the Gallup et al. reference, since claim 1 recites a current electrode for supplying a constant direct current to the skin, which provides a constant direct current and is separated from a measurement electrode.

In view of the above, applicants respectfully submit that the Gallup et al. reference fails to disclose each and every element of claim 1. Accordingly, claim 1, as well as claim 24 depending therefrom, are believed to be allowable over the Gallup et al. reference. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

E. Asserted Anticipation Rejection of Claims 1 and 60

In the outstanding Office action, the Examiner rejected claims 1 and 60 under 35 U.S.C. § 102(b) as being anticipated by the Skladnev et al. reference. Applicants respectfully submit that claim 1 is not anticipated by the Skladnev et al. reference for at least the reasons set forth below.

In the outstanding Office action, the Examiner asserted that the Skladnev et al. reference discloses a current source 127, and further discloses that the current source is a voltage controlled current generator capable of supplying a constant current when the controlling voltage remains constant. *Office action of May 12, 2006, at paragraph no. 16, pages 4-5.* Applicants respectfully disagree with this characterization of the Skladnev et al. Moreover, applicants respectfully submit that the Skladnev et al. reference fails to disclose or suggest "a current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1.

In particular, applicants note that the "controlling voltage" that controls the voltage controlled current generator is originated from a phase locked loop (PLL) 129. See the Skladnev et al. reference at page 15, lines 5-8. It is well understood in the art that a PLL outputs a signal of a predetermined frequency, i.e., a regularly varying signal. Thus, the "controlling voltage" is not constant, as suggested by the Examiner. Moreover, the Skladnev et al. reference describes element 127 as an "alternating current generator 127." See the Skladnev et al. reference at page 14, line 36 to page 15, line 1.

In addition, applicants note that the Skladnev et al. reference uses an electrical signal between 1 Hz and 10 MHz. See the Skladnev et al. reference at page 6, lines 24-33. Accordingly, it is apparent that an alternating current is described. Applicants respectfully submit that the Skladnev et al. reference does not describe the output of a direct current, as presently recited in claim 1. Accordingly, applicants respectfully submit that there are significant differences between the subject matter recited in claim 1 and the Skladnev et al. reference, since claim 1 recites a current electrode for supplying a constant direct current to the skin, which provides a constant direct current and is separated from a measurement electrode.

In view of the above, applicants respectfully submit that the Skladnev et al. reference fails to disclose or suggest each and every element of claim 1. Accordingly, claim 1, as well as claim 60 depending therefrom, are believed to be allowable over the Skladnev et al. reference. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

F. Asserted Obviousness Rejection of Claims 1, 4, 6, 8, 10 and 53-59

In the outstanding Office action, the Examiner rejected claims 1, 4, 6, 8, 10 and 53-59 under 35 U.S.C. § 103(a) as being unpatentable over the Hirschman reference. Applicants respectfully submit that the Hirschman reference fails to render claim 1 obvious for at least the reasons set forth below.

In the outstanding Office action, the Examiner asserted that the Hirschman reference discloses a current source, and further discloses that, in conventional impedance plethysmography, a constant current source 15 of RF energy is used. *Office action of May 12, 2006, at paragraph no. 20, page 5, and paragraph no. 23, page 6.* However, applicants respectfully submit that the Hirschman et al. reference fails to disclose or suggest "a current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1.

In particular, applicants note that RF energy is a high-frequency energy, i.e., an alternating current. See, e.g., the Hirschman reference at col. 5, lines 60-61, which describes the RF energy as having a frequency of 1 KHz to 1 MHz. Applicants respectfully submit that the Hirschman reference does not describe the output of a direct current, as presently recited in claim 1. Accordingly, applicants respectfully submit that there are significant differences between the subject matter recited in claim 1 and the Hirschman reference, since claim 1 recites a current electrode for supplying a constant direct current to the skin, which provides a constant direct current and is separated from a measurement electrode.

In view of the above, applicants respectfully submit that the Hirschman reference fails to disclose or suggest each and every element of claim 1. Accordingly, claim 1, as well as claims 4, 6, 8, 10 and 53-59 depending therefrom, are believed to be allowable over the Hirschman reference. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

G. Asserted Obviousness Rejection of Claims 3 and 5

In the outstanding Office action, the Examiner rejected claims 3 and 5 under 35 U.S.C. § 103(a) as being unpatentable over the Hirschman reference in view of the Hagen reference. Applicants respectfully submit that the proposed combination of the Hirschman and the Hagen references fails to render claims 3 and 5 obvious for at least the reasons set forth below.

Applicants note that claims 3 and 5 depend from claim 1 and, as set forth above, claim 1 is believed to be allowable over the Hirschman reference. In addition, applicants note that the Hagen reference is directed to an electrode for an HF-surgery device, i.e., a high frequency alternating current surgery device. Accordingly, applicants respectfully submit that the Hagen reference fails to provide the teachings noted above as missing from the Hirschman reference, viz., "a current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1.

In view of the above, applicants respectfully submit that the proposed combination of the Hirschman and Hagen references fails to disclose or suggest each and every element of claim 1 and, thus, necessarily fails to disclose or suggest each and every element of claims 3 and 5. Therefore, claims 3 and 5 are believed to be allowable over the proposed combination of the Hirschman and Hagen references, and applicants respectfully request that this rejection be reconsidered and withdrawn.

H. Asserted Obviousness Rejection of Claim 17

In the outstanding Office action, the Examiner rejected claim 17 under 35 U.S.C. § 103(a) as being unpatentable over the Libke et al. reference in view of Dufresne et al. reference. Applicants respectfully submit that the proposed combination of the Libke et al. and Dufresne et al. references fails to render claim 17 obvious for at least the reasons set forth below.

Applicants note that claim 17 depends from claim 1 and, as set forth above, claim 1 is believed to be allowable over the Libke et al. reference. Moreover, applicants respectfully submit that one of ordinary skill in the art would not be motivated to combine the Libke et al. and Dufresne et al. references. In particular, applicants note that the Dufresne et al. reference is directed to the use of high voltage to cause muscle contraction or block a sensation of pain in a subject. See the Dufresne et al. reference at col. 1, lines 11-37. In contrast, the Libke et al. reference uses a signal having "a frequency which is totally undetectable to the human

body." See the Libke et al. reference at col. 5, lines 24-26. Accordingly, applicants respectfully submit that one of ordinary skill in the art would not be motivated to modify the Libke et al. system, which is intended to be undetectable to the subject, so as to provide a high voltage signal capable of inducing muscle contractions, as provided by the Dufresne et al. system.

In view of the above, applicants respectfully submit that claim 17 is allowable over the proposed combination of the Libke et al. and Dufresne et al. references. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

I. Asserted Obviousness Rejection of Claims 1, 19 and 60

In the outstanding Office action, the Examiner rejected claims 1, 19 and 60 under 35 U.S.C. § 103(a) as being unpatentable over the Mee et al. reference in view of the Skladnev et al. reference. Applicants respectfully submit that the proposed combination of the Mee et al. and Skladnev et al. references fails to render claims 1, 19 and 60 obvious for at least the reasons set forth below.

In the outstanding Office action, the Examiner admitted that the Mee et al. reference does not disclose a current source. *Office action of May 12, 2006, at paragraph no. 37, page 8.* Therefore, applicants respectfully submit that the Mee et al. reference necessarily fails to disclose "a current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1. Moreover, as set forth above, applicants respectfully submit that the Skladnev et al. reference likewise fails to disclose this aspect of claim 1. Therefore, applicants respectfully submit that the proposed combination of the Mee et al. and Skladnev et al. references fails to disclose or suggest each and every element of claim 1. Accordingly, claim 1, as well as claims 19 and 60 depending therefrom, are believed to be allowable over the proposed combination of the Mee et al. and Skladnev et al. references, and applicants respectfully request that this rejection be reconsidered and withdrawn.

J. Asserted Obviousness Rejection of Claims 12-14

In the outstanding Office action, the Examiner rejected claims 12-14 under 35 U.S.C. § 103(a) as being unpatentable over the Fletcher et al. reference in view of the Hofmann reference. Applicants respectfully submit that the proposed combination of the Fletcher et al. and Hofmann references fails to render claims 12-14 obvious for at least the reasons set forth below.

Applicants note that claims 12-14 depend from claim 1 and, as set forth above, claim 1 is believed to be allowable over the Fletcher et al. reference. In particular, the Fletcher et al. reference fails to disclose or suggest "a current source for supplying the constant direct current to the current supply electrodes," as presently recited in claim 1. Applicants respectfully submit that the Hofmann reference fails to provide these missing teachings.

Moreover, neither the Fletcher et al. reference nor the Hofmann reference, whether alone or in combination, disclose or suggest the particular features of the measurement system recited in claims 12-14. For example, claim 13 recites a measurement system having first.and second electrode distance adjusters for adjusting a distance between current supply electrodes and measurement electrodes, respectively. The first and second electrode distance adjusters include first and second stationary screw lines, respectively, which are separated from each other by a predetermined distance and are perpendicular to each other.

In the outstanding Office action, the Examiner asserted that the Fletcher et al. reference discloses electrode distance adjusters. *Office action of May 12, 2006, at paragraph no. 41, page 8.* However, the distance adjusters described in the Fletcher et al. reference are for readout ring electrodes only, and the applicants respectfully submit that there is no disclosure or suggestion in the Fletcher et al. reference that distance adjusters be provided for current supply electrodes.

Moreover, applicants respectfully submit that the Examiner's assertion that it would have been obvious to modify the distance adjusters of the Fletcher et al. reference such that one adjuster comprises both measurement electrodes and the other adjuster comprises both currently supply electrodes is not supported by the cited prior art. In particular, the Fletcher et al. reference fails to suggest providing distance adjusters for the current supply electrodes.

In addition, neither the Fletcher et al. reference nor the Hofmann reference, whether alone or in combination, suggest a measurement system wherein first and second electrode distance adjusters include first and second stationary screw lines that are separated from each other by a predetermined distance and are perpendicular to each other. Accordingly, applicants respectfully submit that there are significant differences between the present invention as recited in claims 12-14 and the cited prior art references.

In view of the above, applicants respectfully submit that the proposed combination of the Fletcher et al. and Hoffman references fails to disclose or suggest each and every element of claim 1 and, thus, necessarily fails to disclose or suggest each and every element of claims 12-14. Therefore, claims 12-14 are believed to be allowable over the proposed combination of the Fletcher et al. and Hoffman references, and applicants respectfully request that this rejection be reconsidered and withdrawn.

K. Conclusion

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

LEE & MORSE, P.C.

Date: August 14, 2006

Eugene M. Lee, Reg. No. 32,039

LEE & MORSE, P.C.
3141 FAIRVIEW PARK DRIVE, SUITE 500
FALLS CHURCH, VA 22042
703.207.0008 TEL
703.207.0003 FAX

PETITION and DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.